

IN THE CLAIMS

Please amend the claims as follows:

1 (Currently Amended): A pulse detonation engine system, comprising:

a pulse detonation generator including a detonation tube having a tubular hollow section configured to generate a detonation wave therein during a combustion process of a mixture gas combined with a gas and a fuel, a gas supply section configured to feed the gas into the tubular hollow section of the detonation tube at a given time interval, a fuel supply section configured to feed the fuel into the tubular hollow section of the detonation tube at ~~[[the]]~~ a given time interval, and an igniter configured to ignite the mixture gas in the tubular hollow section of the detonation tube; ~~[[and]]~~

a turbine driven by impact energies of detonation waves intermittently generated in the tubular hollow section of the detonation tube; and

a boiler configured to generate steam; wherein

the pulse detonation generator further includes a bypass flow passage configured to directly provide ~~[[a gas]]~~ the steam generated by the boiler to the turbine in order to continuously operate the turbine.

2 (Previously Presented): The pulse detonation engine system according to claim 1, wherein

the pulse detonation generator further includes a shock alleviating section configured to alleviate the impact energies of the detonation waves in order to protect the turbine from directly receiving the impact energies of the detonation waves.

3 (Previously Presented): The pulse detonation engine system according to claim 2, wherein

the shock alleviating section includes a shock damper configured to convert the impact energies of the detonation waves, released from an open end of the detonation tube, into compression energy of the gas, and to introduce the compression energy of the gas into the turbine.

4 (Cancelled).

5 (Currently Amended): [[A]] The pulse detonation engine system according to claim 1, ~~comprising: a pulse detonation generator including a detonation tube having a tubular hollow section configured to generate a detonation wave therein during a combustion process of a mixture gas combined with a gas and a fuel, a gas supply section configured to feed the gas into the tubular hollow section of the detonation tube at a given time interval, a fuel supply section configured to feed the fuel into the tubular hollow section of the detonation tube at a given time interval, and an igniter configured to ignite the mixture gas in the tubular hollow section of the detonation tube; and a turbine driven by impact energies of detonation waves intermittently generated in the tubular hollow section of the detonation tube, wherein;~~

the turbine includes first and second turbines disposed on opposite ends of a common rotor shaft ~~in opposition to each other~~ to allow the impact energies of the detonation waves to be dispersed onto the first and second turbines such that the first and second turbines are driven while permitting forces, applied thereto in an axial direction, to cancel each other.

6 (Currently Amended): [[A]] The pulse detonation engine system according to claim 1, further comprising:

~~a pulse detonation generator including a detonation tube having a tubular hollow section configured to generate a detonation wave therein during a combustion process of a~~

~~mixture gas combined with a gas and a fuel, a gas supply section configured to feed the gas into the tubular hollow section of the detonation tube at a given time interval, a fuel supply section configured to feed the fuel into the tubular hollow section of the detonation tube at a given time interval, and an igniter configured to ignite the mixture gas in the tubular hollow section of the detonation tube;~~

~~a turbine driven by impact energies of detonation waves intermittently generated in the tubular hollow section of the detonation tube; and~~

a reformer configured to reform a first fuel into a second fuel, wherein
the fuel to be supplied to the fuel supply section of the detonation tube includes the second fuel that is reformed.

7 (Previously Presented): The pulse detonation engine system according to claim 6,
wherein

the first fuel includes a hydrocarbon fuel, an alcohol fuel, and dimethyl ether, and the reformer reforms the first fuel into the second fuel containing hydrogen and carbon monoxide.

8 (Previously Presented): The pulse detonation engine system according to claim 6,
wherein

the second fuel that is reformed contains hydrogen at a ratio of 30 % and more.

9 (Previously Presented): The pulse detonation engine system according to claim 6,
wherein

the reformer introduces waste heat recovered from the turbine for achieving reforming.

10 (Previously Presented): The pulse detonation engine system according to claim 1, wherein

after a hot flow process, with a high temperature after generating a detonation wave, the gas supply section is operative to permit a cold flow process that combines purging a combustion gas from the detonation tube and cooling at least one of the tubular hollow section of the detonation tube and the turbine by supplying the tubular hollow section of the detonation tube with a gas in excess of a given flow rate, and is operative to alternately execute the hot flow process and the cold flow process.

11 (Currently Amended): The pulse detonation engine system according to claim 1, ~~further comprising~~ wherein:

~~a waste heat recovery~~ the boiler is further configured to generate steam to pre-cool the turbine.

12 (Previously Presented): The pulse detonation engine system according to claim 1, further comprising:

an electric power generator configured to convert a drive force generated by the turbine into electric power.

13 (Previously Presented): The pulse detonation engine system according to claim 1, further comprising:

a shaft member rotated by motive power converted from drive force generated by the turbine.

14 (Currently Amended): A method of driving a turbine using a pulse detonation generator, the method comprising:

feeding a gas into a ~~tabular~~ tubular hollow section of the pulse detonation generator at a given time interval;

feeding a fuel into the tubular hollow section of the pulse detonation generator at a given time interval;

igniting a mixture gas combined with the gas and the fuel in the tubular hollow section of the pulse detonation generator;

generating a detonation wave in the tubular hollow section of the pulse detonation generator; and

driving the turbine by impact energies of detonation waves, intermittently generated in the tubular hollow section of the pulse detonation generator; and

directly flowing a ~~[[gas]]~~ steam to the turbine through a bypass flow passage of the pulse detonation generator in order to continuously operate the turbine.

15 (Previously Presented): The method of driving the turbine according to claim 14, further comprising:

alleviating the impact energies of the detonation waves in order to protect the turbine from directly receiving the impact energies of the detonation waves.

16 (Previously Presented): The method of driving the turbine according to claim 15, wherein

the step of alleviating the impact energies comprises converting the impact energies of the detonation waves released from an open end portion of the pulse detonation generator into

compression energy of the gas, and introducing the converted compression energy of the gas into the turbine.

17 (Cancelled).

18 (Currently Amended): [[A]] The method of driving a turbine according to claim 14, including wherein the turbine includes first and second turbines, and using a pulse detonation generator, the method comprising:

~~feeding a gas into a tubular hollow section of the pulse detonation generator at a given time interval;~~

~~feeding a fuel into the tubular hollow section of the pulse detonation generator at a given time interval;~~

~~igniting a mixture gas combined with the gas and the fuel in the tubular hollow section of the pulse detonation generator;~~

~~generating a detonation wave in the tubular hollow section of the pulse detonation generator;~~

~~driving the turbine using impact energies of detonation waves, intermittently generated in the tubular hollow section of the pulse detonation generator, wherein~~

~~the step of driving the turbine comprises dispersing the impact energies of the detonation waves into the first and second turbines, and driving the first and second turbines while permitting forces applied thereto in an axial direction to cancel each other.~~

19 (Currently Amended): [[A]] The method of driving a turbine according to claim 14, including wherein the turbine includes first and second turbines, and using a pulse detonation generator, the method comprising:

~~feeding a gas into a tubular hollow section of the pulse detonation generator at a given time interval;~~

~~feeding a fuel into the tubular hollow section of the pulse detonation generator at a given time interval;~~

~~igniting a mixture gas combined with the gas and the fuel in the tubular hollow section of the pulse detonation generator;~~

~~generating a detonation wave in the tubular hollow section of the pulse detonation generator;~~

~~driving the turbine using impact energies of detonation waves, intermittently generated in the tubular hollow section of the pulse detonation generator, wherein~~

the step of supplying the fuel comprises reforming a first fuel into a second fuel, and supplying the second fuel into the tubular hollow section of the pulse detonation generator at the given time interval.

20 (Previously Presented): The method of driving the turbine according to claim 19, wherein

the first fuel includes one of a hydrocarbon fuel, an alcohol fuel, and dimethyl ether, and the step of reforming the first fuel comprises reforming the first fuel into the second fuel containing hydrogen and carbon monoxide.

21 (Previously Presented): The method of driving the turbine according to claim 19, wherein

the step of reforming the first fuel performs reforming such that the resulting second fuel contains hydrogen at a ratio of 30 % or more.

22 (Previously Presented): The method of driving the turbine according to claim 14, further comprising:

achieving a hot flow process with a high temperature after generating the detonation wave;

achieving a cold flow process by concurrently purging a combustion gas from the tubular hollow section of the pulse detonation generator and cooling at least one of the tubular hollow section of the pulse detonation generator and the turbine by supplying the tubular hollow section of the pulse detonation generator a gas in excess of a given flow rate; and

alternately executing the steps of achieving the hot flow process and the cold flow process.

23 (Previously Presented): The method of driving the turbine according to claim 14, further comprising:

pre-cooling the turbine with steam.

24 (Previously Presented): The method of driving the turbine according to claim 14, further comprising:

converting drive force generated by the turbine into electric power.

25 (Previously Presented): The method of driving the turbine according to claim 14, further comprising:

converting drive force generated by the turbine into motive power and transferring the motive power to a power shaft.